There appears to be a relation between the speed of excavation and the weather on any particular day—on 13th, 14th and 16th October the weather was fine, warm and sunny following showers, and on 20th and 22nd October, the days were over-cast and the effects of the showers had begun to wear off. It was noticed that this decrease in activity was evident at other nests in the locality on these days also.

Another point with regard to the excavation of these nests and the building of the " ramparts " is that the ants do not emerge at regular intervals with their loads. There may be a lapse of several seconds without any ants appearing and then several will come out at the same time. This will be followed by another gap and then several more will appear together.

From this short and interrupted survey, it would appear that the " ramparts " are built unevenly, one section during a given interval of time receiving more soil than the rest, and also that these ants excavate at a quick rate which appears (at least so far as could be ascertained during these observations) to depend upon the weather.

I wish to thank Mr H. St. J. K. Donisthorpe for kindly naming the ants for me.

REFERENCE.

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EARLY STAGES OF ORIENTAL PALAEARCTIC LEPIDOPTERA, VIII.[1]

By E. P. Wiltshire, F.R.E.S.

Argynnis (*Brenthis*) *hecate*, Schiff., ssp. *caucasica*, Stgr.

Larva: Dorsally black, ventrally yellow-brown, with typical Argynnid spines and two yellow dorsal lines. Spines, yellow-brown. Sublateral line, white, zigzag, conspicuous. Head, brown. Spiracles, small and black.

Foodplant: *Rubus*. (This does not confirm speculation in Seitz.)

Pupa: Rosy brown, shaded with grey on abdomen and wings. Subdorsal spines, dazzlingly silver-gold, especially on somites 4 and 5. The prominent spine on somite 6 and the others on 7-10 are less gilt than the thoracic. From a larva which hung up to pupate on 29.V the imago hatched 9.VI. The imago was also taken on the wing at the same time as this particular larva, i.e. 28.V. This was at 6000-7000 ft. on the south side of the Elburz.

In Northern Kurdistan the imago flies at 6000 ft. in VII.

From the evidence no conclusion can be reached as to number of broods in Middle East.

Melitaea trivia, Schiff., ssp. *robertsi*, Butl.

This species has already been described in its early stages and the object here is to draw attention to local variation in the larva and pupa.

Larva: (1) Beirut, Lebanon form: blue-grey, with dark dorsal chain; spines, yellowish with white tips. Head, orange, divided by a black line and marked with a dot low down on each cheek. Legs, black; abdominal claspers, yellowish (sea-level).

[1]The previous article in this series appeared in *Ent. Rec.*, LVI, November 1944.

(2) Elburz, N. Persian form: black, with yellow-brown feet, spines and head, the latter marked with black (9000 ft.).

(3) Shiraz, S.W. Persian form: blackish ground colour under lens proves to be sooty grey with black rings; spines yellow. Head, orange-brown, blackish between the lobes (7000 ft.).

Foodplants: (1 and 2) *Verbascum*, (3) *Scrophularia*.

Pupa: (1) Blue-grey, with black and orange blots representing the setae, in the form of a not very concave " C " with an orange centre.

(2) Whitish grey, heavily dappled with black on thorax and wing-cases, but so as to leave a pale dorsal line; abdomen, as in (1) (Plate III, fig. m.).

The discoidal inferior hindwing nervure, among other characters, has served to confirm the identity of the imagines hatched from the above larvae and pupae.

Melitaea persea, Koll.

A pupa of this common Persian species was found on a rock at 6000-7000 ft. near Shiraz. It was white, with black and orange markings reduced to a minimum, i.e. a long wavy orange streak and four small black dashes on each wing-case; intensest black markings on proboscis-case, between the wings; fine black dots on eyes and seta-points, sometimes accompanied by orange shades.

Procris brandti, Alberti.

Larva (Plate III, fig. j): Small, blackish dorsally, with warts giving rise to star-like clusters of white and grey-brown hairs, the white tufts forming two white subdorsal lines. Sides and underside, grey-brown. Head and thoracic feet, black; claspers, brown.

Foodplants: *Prunus* and *Amygdalus*. Habitat, S. Zagros scrub woods (3000-8000 ft.). Larva matures in IV or V, according to elevation, and can even be found in III at lower middle heights. Pupal period is short, and the imago flies in early summer.

Trichiura sapor, Wilts.

Described in the foregoing article, " Middle East Lepidoptera, New Forms and Species, IV."

Larva: Rather variable. Ground-colour, whitish or bluish-grey. When immature (see Fig. k, Plate III), white upstanding hairs form two white dorsal chains, the links consisting of one white longitudinal streak per somite. Sometimes this is so in the last instar too, but more usually the white dorsal markings are then more extensive. The subdorsal line is then wavy, white, with an interrupted black upper and lower edging, the latter the heavier, and a pink spot at each somital joint. On each of the abdominal somites there are black dorsal markings consisting of three parallel lines posteriorly and a thicker [1 or =1] anteriorly (head to left). The three lines are wider than the " C1." On somites 1 and 2, however, there are only broad transverse black bands, with forward-pointing white tufts, and somite 3 has no black dorsal marking. Lateral markings: a conspicuous black or orange-brown spot above the smaller black spiracle, this spot being black in the white-grey forms; also, fainter black vertical streaks near the somital joints. Somite 11 is dorsally almost entirely black. Feet, pink grey. Underside, pale orange and green, with a series of large dark

grey ventral spots. Sometimes, in the blue-grey forms, the posterior half of each somite is yellow-infused. In the blue-grey forms a crimson dorsal bar on somite 11 and two crimson dots on somite 12 appear just above the orifice. In this form the black dorsal markings on the abdominal somites is less extensive, the first of the three bars being no wider than the "C1," and all three being narrower than in the grey form.

The holo-type of *sapor*, emerged from a white-grey form (Plate III, fig. l); but I do not think the blue-grey form is a different species.

Habit, rather sluggish; numerous larvae are found together on a single bush, especially when half-grown in early spring (early III at 3000 ft.). These were full grown by early IV.

Foodplant, *Amygdalus spartioides*. They refused garden almond and apricot, hence the mortality. Habitat: S. Zagros scrub-woods.

Pupa, heavily chitined; ♀ anus without hooks, blunt.

Cocoon, brown, brittle, in a crevice on ground, rough-hewn, long-oval. Would be impossible to distinguish from mud or a pebble in a natural state.

After a long pupal diapause the imago emerges about mid XI.

Chondrostega aurivillii, Pungl. ssp. *feisali*, Wilts.

Larva: Dark grey, dappled with black, this being, however, only apparent in the somital joints. Elsewhere, long yellow and red hairs, springing both from pale brown warts and from the skin, conceal the latter. Shorter black hairs also arise from the warts, but these are not seen with a superficial look. Head, black with an orange or pale brown horizontal bar above the mouth. Spiracles, black. Feet, brown, claspers, orange-brown, both marked with black.

When alarmed, the larva rolls up and then presents a " catherine-wheel " aspect (see fig. O, Plate III); the larva's usual defence, however, would seem to be running. It is a swift runner, and the large gaily-coloured larvae are a common sight on hot days in March in the desert (Lat. 33° N., alt. c. 250 ft.). When smaller, during the cooler winter months, they are more sluggish. They are a favourite prey for bustard, plover and other birds. In S. Persia (Fars) they are called " New Year's Day Pussies " (Gurbeh-i-No-Rooz), this day being 21st March. At sea-level south of lat. 30° the larvae have all buried before the end of February, and the moth appears a week or so later in October. In Iraq the moth hatches after a long pupal diapause in late September or early October. The flight is of short duration, emergences not being " spread."

Cocoon: Whitish, unless (as is the case when wild) woven with earth. Oval, like a *Lasiocampa* cocoon.

Emergence of imago takes place in the afternoon. The wingless females have a strong bitter odour. The males come to light freely.

Foodplant: Low desert annuals. Habitat: Desert and steppe of various types, except alluvial (mud) desert.

Acronycta tehrana, Wilts. (Plate III, fig. n).

The relation of this form to *psi* and *solimana* is discussed in the original description, in the foregoing article " Middle East Lepidoptera, New Forms and Species, IV."

Larva: The wide, light blue dorsal area is interrupted on somite 4 by a black fleshy process and is edged by two black subdorsal spots per somite on each side; from these spots spring long black hairs. Below them is a red lateral area, bounded below and interrupted at each somital joint by the blue ground-colour. Spiracles, black. Underside, feet and claspers, lilac-grey. Head, glossy black.

Foodplant (presumed: larva was found on it, but spun up without eating): *Ulmus*.

Pupation: Early VI.39, emergence 8.V.40.

Amathes (*Rhyacia*) *pulverea*, Hamps.

I obtained many larvae of the *xanthographa* group at Kermanshah (W. Persia) in spring 1940, and noted down three or four different forms and segregated them. Unfortunately, I had to travel to Shiraz via Tehran just at pupation-time, and the resulting mortality prevents me from giving descriptions of the larval differences of the three† species of this group which occur in the Middle East. Only one pupa produced an adult, a ♀ *pulverea*. The larva from which it hatched was described as follows:—

Typical brownish *Rhyacia* larva; dorsal line, fine, pure white, interrupted but visible throughout its length; typical black subdorsal dashes only strongly marked on somites 9 and 10. There is a mottled tendency, possibly in some individuals only, and a tendency to a dorsal diamond formation. Spiracles, white, finely black-rimmed, accompanied by a series of slight dark smears.

Foodplants: Low plants and grasses, at night. The larva buries at the end of March; the moth flies in autumn. (5000 ft.)

CORRIGENDUM TO PART V OF THIS SERIES.

The larva described and figured in Wiltshire (April 1943) as *Clytie distincta* ssp. *iranica*, Brandt, was not that species but a third larval form of *Hypoglaucitis benenotata*, Warr., of which two larval forms were described in Part III (*Ent. Rec.*, November 1944). The name should therefore be amended therein, and in Wiltshire (October 1944) name No. 344b (in the Addendum) should be deleted, since this referred to the same larval form.

NEW RECORDS OF LEPIDOPTERA FROM IRAN—II.

By E. P. Wiltshire, F.R.E.S.

My first article in this series added seventy species of Lepidoptera to the already recorded fauna of Iran (Persia). This is intended as a further contribution to a faunal list of that faunistically amazing land.

As the result of further studies of my 1939-42 material the following new records can be added:

†The occurrence of the third, *palaestinensis*, Kalchb., in Persia, still requires confirmation.